The TMDLs required for HUC 17010303 can be grouped in some cases. The two most upstream segments of the Coeur d'Alene River are sediment impaired. This impairment is the result of sediment delivery from the North and South Forks of the river. Below Skeel Gulch sediments are fine and the river is at a sufficiently low gradient that the bed consists of fine sand rather than cobble bedded. In this case sedimentation does not impact beneficial use directly as in higher gradient channels. The sediment impairment above Skeel Gulch must be addressed in the source areas of the North and South Fork Coeur d'Alene Rivers.

Sediment and temperature impair Latour Creek. Its tributaries Baldy and Larch Creeks were found to be temperature impaired. Baldy and Larch Creeks will be treated in a Latour Creek TMDL which addresses excessive sedimentation. Temperature TMDLs have been postponed pending resolution of Idaho's temperature standards.

Wolf Lodge Creek and its tributary Cedar Creek appear from the sediment analysis to have elevated sedimentation. Although Marie Creek was not listed for sediment it will be treated in a Wolf Lodge Creek TMDL which also will address Cedar Creek. Individual sediment TMDLs will be required for Cougar, Kidd and Mica Creeks. A bacteria TMDL is required for Mica Creek.

A sediment TMDL is required for Lake Creek. The segment listed is located within the boundaries of the Coeur d'Alene Reservation making this TMDL the lead responsibility of the Environmental Protection Agency (EPA). Lake Creek had an active State Agricultural Water Quality Program (SAWQP). The program plan is with some rearrangement and the addition of an in-stream water quality goal, essentially a TMDL. A loading analysis and allocation are present in the current plan. Either the EPA or the Natural Resource Conservation Service could reshape the existing program plan into a TMDL. Implementation of that plan is currently underway.

2.4. Pollution Control

Some water pollution controls have been implemented. These are discussed in the following sections together with the pollution control strategies.

2.4.1. Control Efforts to Date

Pollution control efforts to date have been in place on some of the watershed requiring additional TMDL measures.

Analysis of sediment in eleven watersheds of the basin indicates roads are the primary sediment producing infrastructures. Forest harvest methods have progressed from logging systems heavily dependent on haul roads to those less dependent of high road densities. At certain log prices, helicopter logging has become a viable alternative in some watersheds. Unfortunately, an inventory of old roads continue to yield sediment to the streams. The U.S. Forest Service has

carried out an aggressive program of forest road retirement and obliteration in the past five years. These efforts should have some beneficial effect primarily in the Wolf Lodge Creek watershed. The Latour, Cougar and Mica Watersheds contain very limited or no lands under Forest Service Management.

The Forest Service Program has sought to obliterate entire roads. Recent analysis indicates roads cause sediment loading primarily near road crossings of streams and where roads are located within the stream floodplain causing gradient changes. Scarce funds obtained by the Forest Service might be better targeted on the sediment yield areas rather than on obliteration of the entire road.

Kootenai County has operated sediment traps in lower Latour Creek. These traps are fitted with rock sills to prevent head cutting. These traps collect excess sediment during high flow. The sediment is removed by a local gravel contractor and sold in the aggregate market. Similar gravel harvest occurs in Wolf Lodge Creek.

The Lake Creek SAWQP was discussed earlier. This program has contracts let for application of agricultural best management practices on 2,270 acres of the 8,147 critical cropland acres in the watershed. In addition 1,135 acres have been placed in the federal Conservation Reserve Program. The SAWQP program is currently 42% implemented.

2.4.2. Pollution Control Strategies

Pollution control strategies are required for sediment and temperature in one watershed, for sediment and bacteria in another and for sediment in an additional two watersheds.

A temperature TMDL would set thermal guidelines to meet state temperature criteria. The TMDL might then assess the amount of unshaded stream within the watershed. Relationships between the percent of stream shading and the thermal input to the stream have been developed. Based on these relationships and the inventory of stream shading, riparian plantings would be allocated to achieve a percent cover goal associated with a thermal goal.

Sediment TMDLs have a less precise criteria-based goal. In this case a level of sediment reduction based on best professional judgement of hydrologists and sedimentologists would be set for each watershed requiring a TMDL. Since roads are known to be the major sediment yielding areas, the TMDL would allocate sediment load reduction based on road improvements or abandoned road obliteration. Roads located within the floodplain of streams and affecting the stream gradient would be targeted for removal. Where stream gradient had been altered for agricultural purposes, stream realignment or armoring should be explored. Stream crossings are additional locations at which forest roads are a source of sediment generation, both directly or by increased water capture. Where no longer needed these crossings should be decommissioned to remove culverts, lay back the stream bed and make the road surface an out sloped an infiltrating surface, by grading and ripping the surface. Sediment reduction can be estimated for all of these

measures. The watersheds can be inventoried to select a suite of sediment reducing projects. A system of pollution credit trading might be instituted as part of the TMDL to engage the private sector in the implementation of sediment reducing projects as best management practices are currently installed today as a part of doing business in forested watersheds. Agricultural incentives could be applied to promote application of stream channel's gradient restoration or armoring on private agricultural lands.

A bacterial TMDL would require reduction of bacteria numbers in a stream through different livestock management. The TMDL would require specific percent reductions of these management actions.

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